

Servicing the Cougar 8000-Series

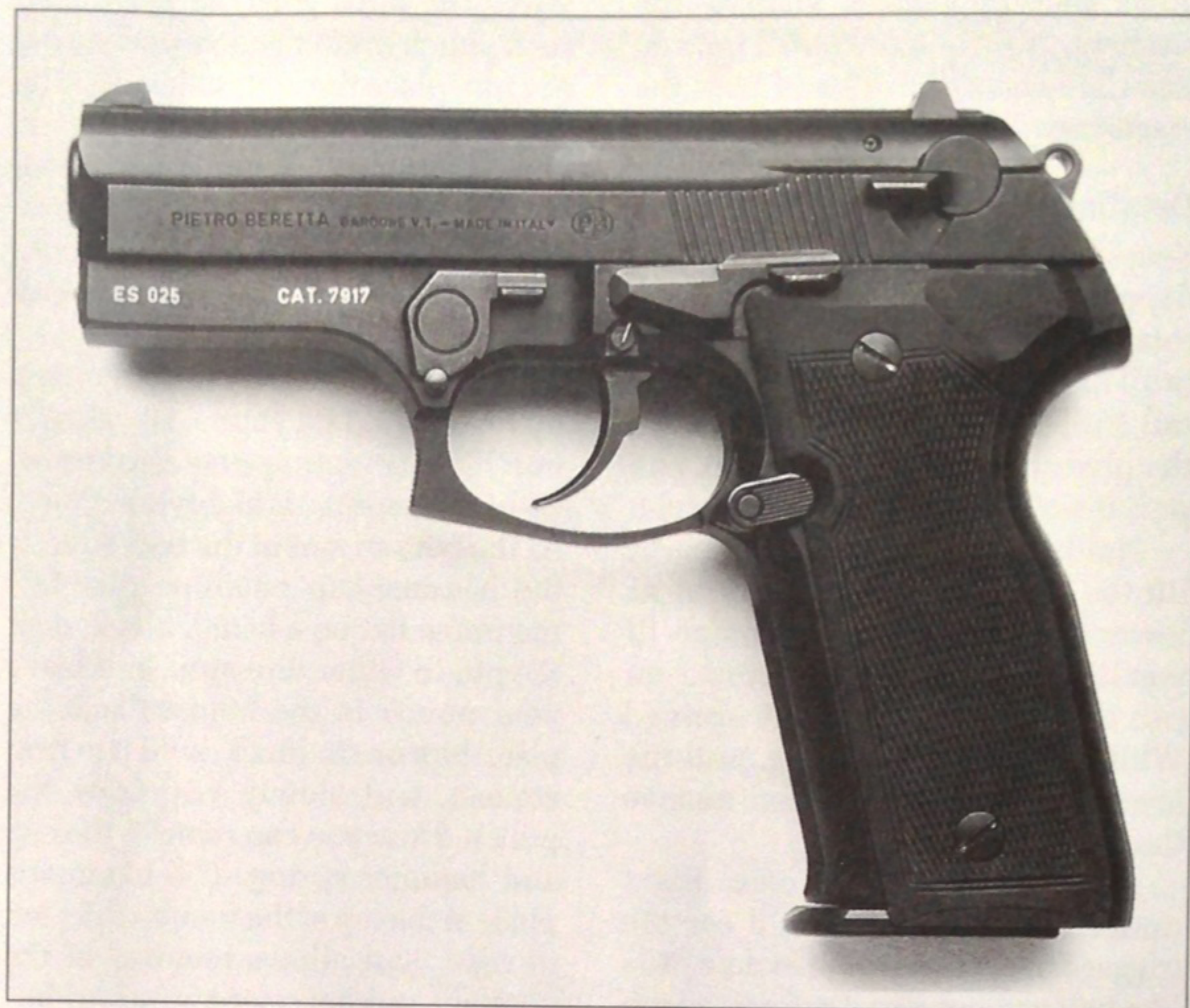
Beretta went back to the drawing board to design this large-caliber compact-frame pistol. Here's how to disassemble, troubleshoot, and reassemble it.

Developed primarily as an undercover or concealed-carry handgun, the Cougar is showing up as the standard-issue duty weapon in a growing number of law-enforcement agencies. Though it does incorporate the same safety system as Beretta's 92/96-Series, it is not merely a scaled-down version of its open-slide cousins, and is considered by some users to be superior to them because of its ergonomic characteristics, low recoil, and accuracy.

Operating on the short-recoil principle, the Cougar combines its proven locked-breech system with a rotating barrel. When the pistol is in battery, the positive barrel-to-slide lock-up assures perfect alignment of the barrel and sights. When the gun is fired, the barrel travels and rotates with an axial movement. As a result, part of the recoil energy is channeled into the barrel rotation, while barrel and slide shock are partially absorbed through the central block before being transferred to the frame. This technology achieves unusually low felt recoil and quicker recovery of the sight picture for subsequent shots.

The Cougar doesn't have a sharp edge anywhere, and can be had in "mini" size—one inch shorter and two ounces lighter than its compact configuration. Cougar G Models are equipped with a manual decocking

by Chick Blood



lever only, instead of the safety-decocking lever found on F Models. Cougar D Models are double-action only, with manual safety and decocking levers eliminated. On these pistols, the hammer spur has been removed, and the hammer lies flush with the rear of the slide.

Cycle of Operation

When the pistol is fired, recoil energy begins to move the barrel/slide assembly to the rear. After a short amount of travel, the barrel begins to revolve via a camming action against the central block. When the barrel has turned approximately 30 degrees, its locking lugs clear the locking recesses in the slide, and the barrel comes to a stop.

The slide keeps on moving back to extract/eject the spent round, cock the hammer, and compress the recoil spring. Acted on by the spring, the slide then moves forward, strips the next cartridge from the magazine, chambers it, causes the barrel to rotate

***Above:** The new Beretta Cougar semi-autos are available in many high-power calibers. Their design combines a locking-breech system with a rotating barrel, while their dimensions make them easy to conceal and operate.*

to vertical against the central block, and achieves lock up.

Field Stripping

With the magazine out and the gun made safe, point its muzzle away from you, and depress the disassembly latch button on the frame's right side. Hold in the button, and rotate the disassembly latch (located on the left side of the frame) downward 45 degrees.

If the hammer is half cocked, fully cock it, then pull the slide forward and off the frame. The barrel, cam block, recoil spring, and recoil-spring guide come off with it. Free the recoil spring and guide from the cam block

by compressing and lifting them, then rotate the barrel counter clockwise to remove it.

Take off both grip panels, being careful not to lose the spring washer under each grip screw. Without the washers, the grip screws will intrude into the magazine well and bind the magazine.

Detailed Disassembly of the Frame

Keeping the disassembly latch button depressed with a finger of one hand, rotate the disassembly latch upward until its thumb rest is above the frame rail. Pull the latch out to the left, relax the pressure on the latch button, and pull it and its spring out to the right.

Holding the pistol on its right side, lift the slide-catch lever up until its lower rear corner clears the frame. (If you lift it much higher than that, you can damage the slide-catch spring.) While retaining the spring, pull the lever out of the frame, then remove the spring.

Now turn the frame over. Right under the trigger bar you'll see the trigger-bar spring, which looks a little like half a paper clip. Depress the top of the spring, swivel it into the magazine well, and remove it toward you. Place your right index finger on the trigger, and reach into the magazine well with any finger on your left hand. While pressing on the inside of the trigger bar, tap the trigger lightly, and remove the trigger bar to the frame's right.

The trigger pin drifts right to left, but before removing it, place a finger over the trigger well to prevent the trigger spring from escaping. With the pin out, the trigger and spring are lifted upwards.

As with most pistols of similar design, there's a bit of a rat's nest comprised of the ejector, hammer-decock lever, and firing-pin-block lever at the upper rear of the frame. It's all held in there by a retaining pin (that only drifts from right to left) and the ejector pin (which can be driven in either direction). Better take a close look at how the decocking and firing-pin-block levers fit in before you start on the pins, because that's the way

they have to go back in.

The sear pin, located on the backstrap, drifts in either direction but the sear and sear spring it retains are under light tension. Both can take off when the pin's gone, so leave your drift punch in after you've pushed out the pin, place the butt of the pistol on the bench, then ease out the punch. Now examine where the sear and sear spring used to be inside the frame. There are clearance cuts for both which come into play during reassembly.

If you haven't been wearing them up to now, put on your safety glasses now. The hammer spring, also known as the mainspring, is highly tensioned. At the bottom rear of the backstrap is the hammer-cap retaining pin. Lay the frame flat on a bench block, drift the pin in either direction, and leave your punch in the frame. Place the pistol butt on the block, hold it in firm contact, and slowly withdraw the punch. Now you can remove the cap and hammer spring. The hammer's pin is at the top of the frame, drifts left to right, and allows removal of the hammer and hammer-spring guide.

As it comes from the factory, the magazine release is set up for a right-handed shooter. It can be removed or reversed for a left-hander by drifting the magazine-release retaining pin upwards with a small punch. The magazine-release assembly is under tension applied by the magazine-catch spring, and is likely to seek relief from the pressure by flying out both sides of the frame if uncontrolled.

Detailed Disassembly of the Slide

With the slide resting on its left side on a bench block, place a fingertip over the firing-pin block, and drive out the block's pin downward. Keep your finger in place as you remove the punch, then ease off. The firing-pin block and its spring will pop out. Now position the slide sight side up with the safety/decocking lever in the "fire" position, and find the retaining pin on top of the right-hand lever. The pin drifts downward. Insert a punch in the rear of the slide and push in on the firing-pin plunger. Grasp the left safe-

ty lever and wiggle it up and down a little as you remove it to the left. Go back to the right side, and move the right lever down gently to dislodge it from its spring. The lever is taken out to the rear and upward, but the trigger-bar spring and plunger are right under it. Both will fly the instant the lever clears the slide.

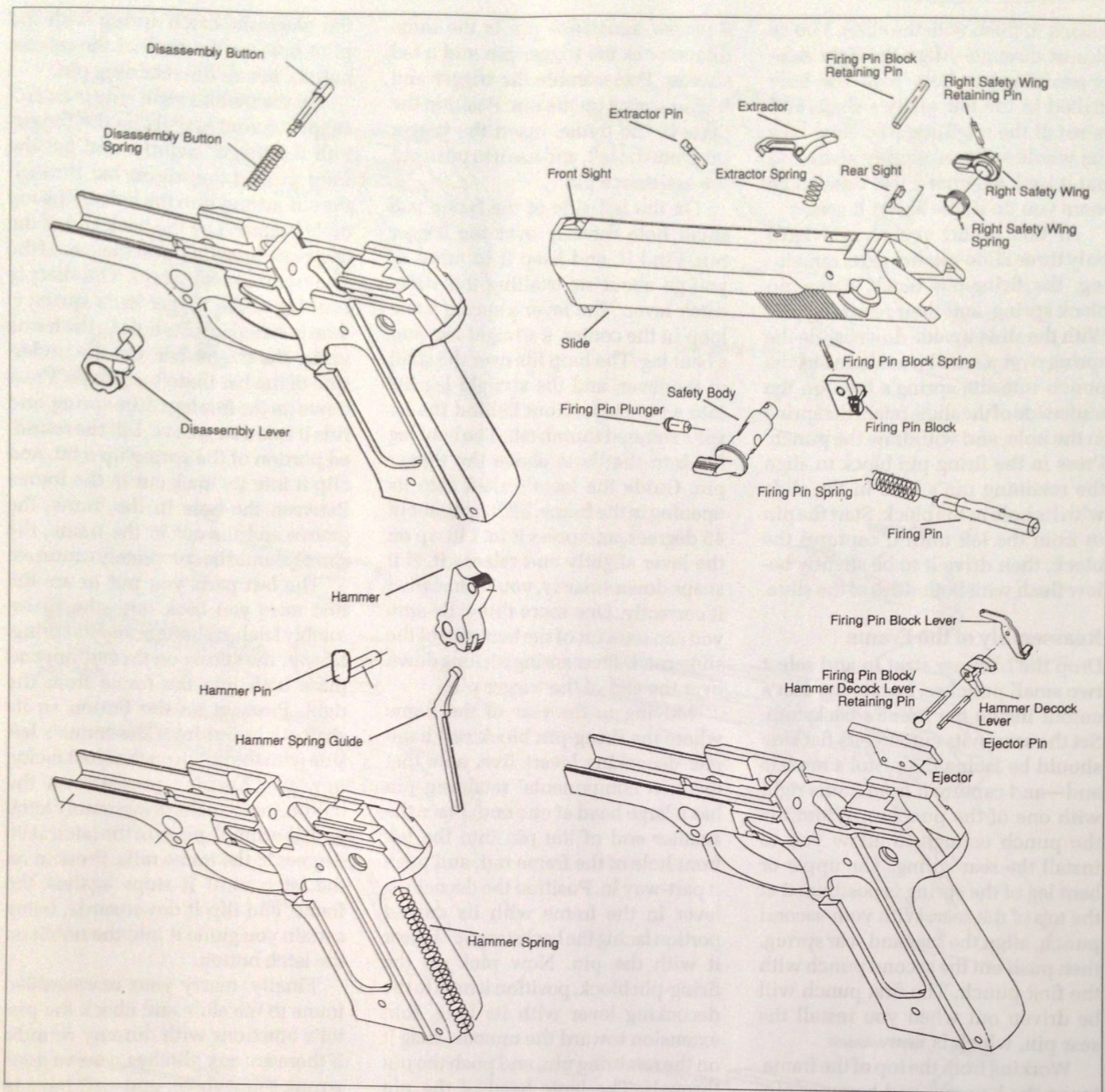
Some 'smiths perform slide disassembly of the Beretta 92/96-Series with both pistol and hands inside a plastic bag to avoid having to hunt for flying springs. It might not be a bad idea to approach the Cougar in the same way.

The extractor pin is on top of the slide and forward of the firing-pin block's slot. It is removed from the underside of the slide, reinstalled from the top, and the pin's hole is drilled at an angle. To remove the pin, therefore, the slide should be upside down with its muzzle end pointed away from you and your punch tilted slightly to the left. This pin also retains the extractor spring, firing pin, and firing-pin spring. It's best to cover the rear of the slide to prevent a firing-pin hit on your bellybutton when you pull out your punch.

Reassembly of the Slide

Slip the firing-pin spring over the firing pin, and insert them into the slide, making sure the firing-pin cut-outs are on the ejection-port side of the slide. After inverting the firing-pin block, use a punch to push in the firing pin, and insert the block at the top of the slide to hold the firing pin in place while you install the extractor spring and extractor. Remember, the extractor-retaining pin is reinstalled from the top of the slide. Once it's in place, you can take out the firing-pin block and set it aside until later.

Now for a little brain surgery—the safety\decocker. At least it will seem like brain surgery the first time you go at it. Begin by installing the trigger-bar spring and trigger-bar plunger in their hole located in the right side of the slide. Pick up the right-hand lever from wherever you put it down, and look at the side that fits up against the slide. See the little hole? The bent end



of the safety-lever spring goes in it. Use the edge of the safety opposite its lever to compress the trigger-bar plunger while you push the safety inward to a flush position with the slide. The straight leg of the safety spring must fit into the slot located at 12 o'clock on the safety's opening in the slide.

Now pick up the left safety lever. You can't miss it. It's the lever with the long shaft attached. In the shaft, there's a large hole that fits the large

head of the firing-pin plunger. Make sure that hole and the head are properly oriented, then take note of another hole. This one is on the left side of the slide, exists to accept the safety being held in your hand, and has a clearance cut at 10 o'clock. The cut is there to allow the firing-pin plunger to pass through, because you have to push the plunger forward when installing the safety into the slide. (If you don't push it, the plunger won't contact the firing pin.)

Above and page 7: Since no composite schematic of the Cougar seems to exist, these drawings will assist in parts identification and how those parts interface with one another during reassembly.

When actually putting the left safety in, you have to hold on to the right safety with your other set of fingers while working the left safety's thumb lever up and down slightly as you

push it in flush with the slide. You're almost through. Align the right safety-retaining-pin hole with the hole drilled in the left safety's shaft, and reinstall the retaining pin. Now take the whole safety assembly apart and put it back together a few times. The more you do it, the easier it gets.

At this point, you should have only three slide-related parts remaining: the firing-pin block, firing-pin block spring, and their retaining pin. With the slide upside down, slide the spring over a small punch, insert the punch into the spring's hole on the underside of the slide, retain the spring in the hole, and withdraw the punch. Press in the firing-pin block to align the retaining pin's hole in the slide with its hole in the block. Start the pin in from the left until it captures the block, then drive it to be slightly below flush with both sides of the slide.

Reassembly of the Frame

Drop the hammer strut in and select two small punches. Locate the sear's cutout inside the frame's backstrap. Set the sear in its cutout—its flat side should be facing the pistol's muzzle end—and capture it from frame right with one of the punches. Withdraw the punch enough to allow you to install the sear spring. The upper or bent leg of the spring is positioned at the top of the sear. With your second punch, align the sear and sear spring, then push out the second punch with the first punch. The first punch will be driven out when you install the sear pin, which is now.

Working from the top of the frame, insert the hammer and hammer pin, invert the pistol, and tap the frame lightly to make sure the hammer strut falls into place in its slot under the hammer. Slide the hammer spring and cap over the strut, keep light pressure on the cap, invert the pistol again, and press its butt down firmly on your bench to compress the spring. When all appropriate holes are aligned, install the retaining pin.

It is no longer politically correct to call them "slave" pins, so make yourself an "assistance" pin before tackling the trigger group. For the Cougar,

a proper assistance pin is the same diameter as the trigger pin and a tad shorter. Preassemble the trigger and trigger spring on the pin. Position the parts in the frame, insert the trigger pin from the left, and use it to push out the assistance pin.

On the left side of the frame is a small hole directly over the trigger pin. Find it, and keep it in mind as you go about reinstalling the slide-catch lever. The lever's spring has a loop in the center, a straight leg, and a bent leg. The loop fits over the shaft of the lever, and the straight leg fits into a notched cutout behind the lever's serrated thumb tab. The bent leg fits into that hole above the trigger pin. Guide the lever's shaft into its opening in the frame, lift it up to about 45 degrees, and press it in. Lift up on the lever slightly and release it. If it snaps down smartly, you've installed it correctly. One more thing: Be sure you can see a bit of the bent end of the slide-catch-lever spring sticking down over the end of the trigger pin.

Moving to the rear of the frame where the firing-pin block and hammer-decocking levers live, note that the two components' retaining pin has a large head at one end. Place the smaller end of the pin into the left front hole of the frame rail, and push it part-way in. Position the decocking lever in the frame with its curved portion facing the backstrap, and spear it with the pin. Now pick up the firing-pin block, position it next to the decocking lever with its long, thin extension toward the muzzle, snag it on the retaining pin, and push the pin through. The large head of the pin should be lightly staked in place to prevent its working loose. Omit the staking and parts could fall out and get lost the next time the pistol's field stripped.

To reinstall the magazine catch for either right- or left-hand operation, insert the shaft of the catch through its opening just aft of the trigger guard. Holding the catch in place, install its release spring. Slip the catch-release button over that portion of the shaft protruding from the frame, and squeeze them together. After aligning

the magazine-catch spring with the pilot hole on the back of the release button, install the retaining pin.

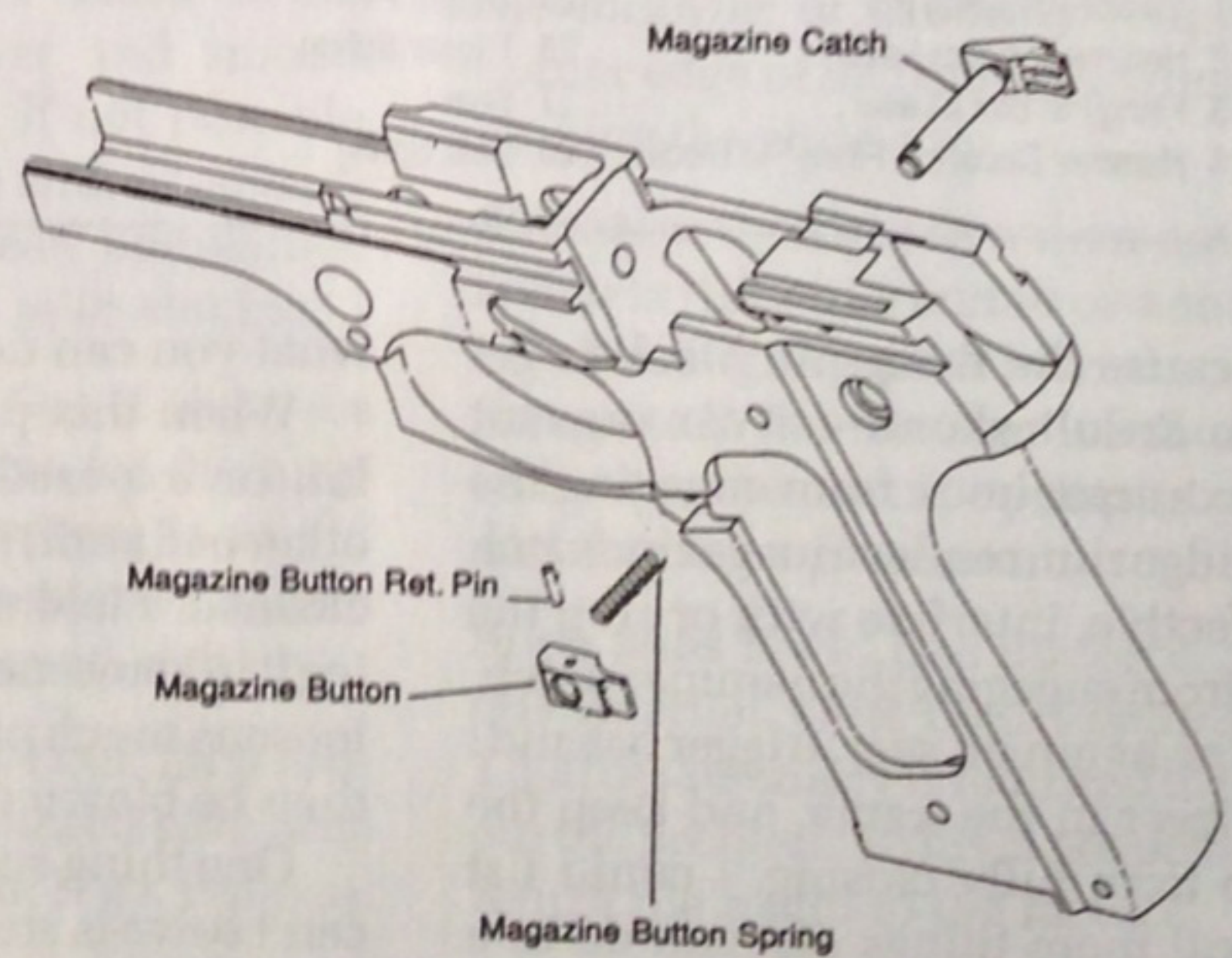
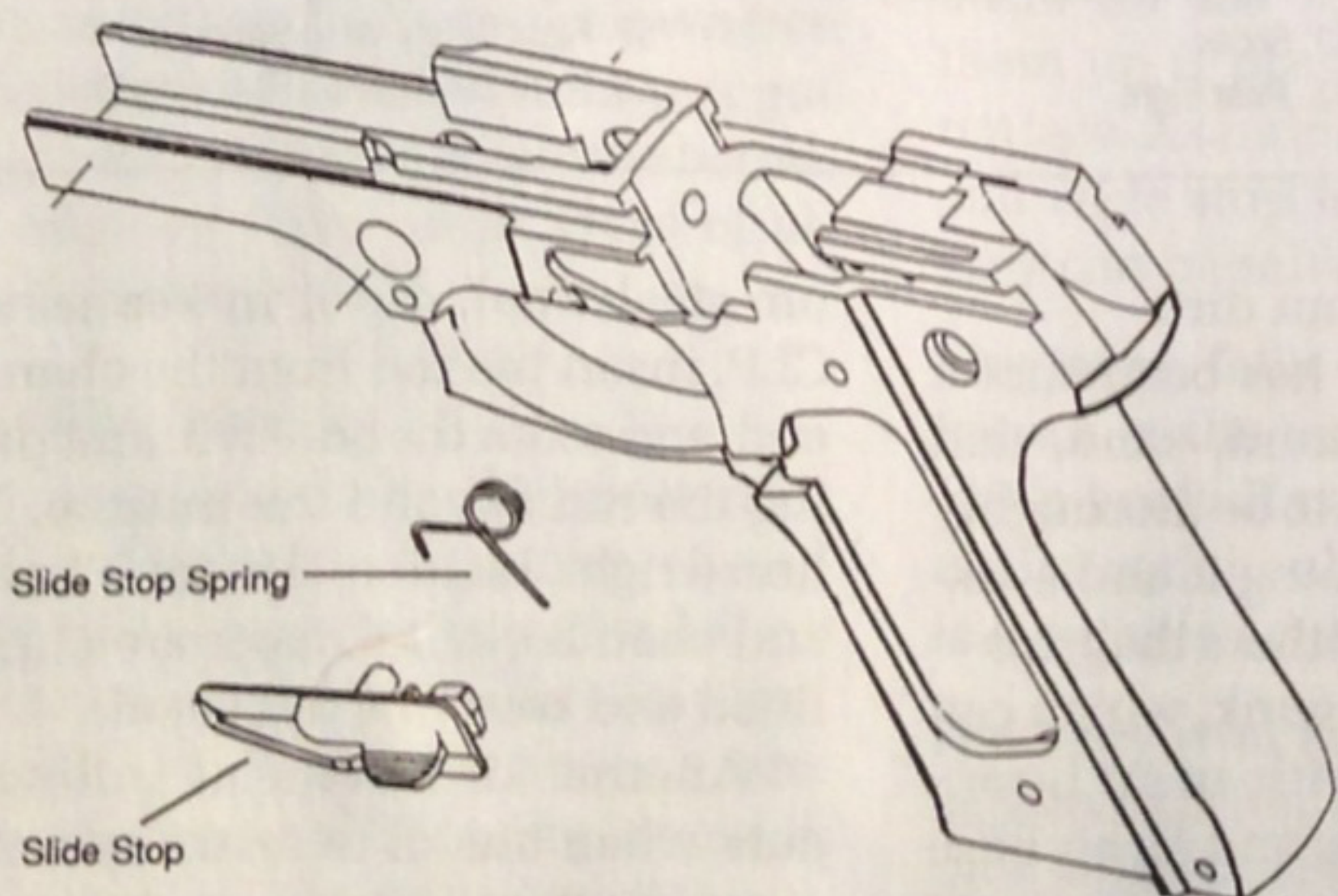
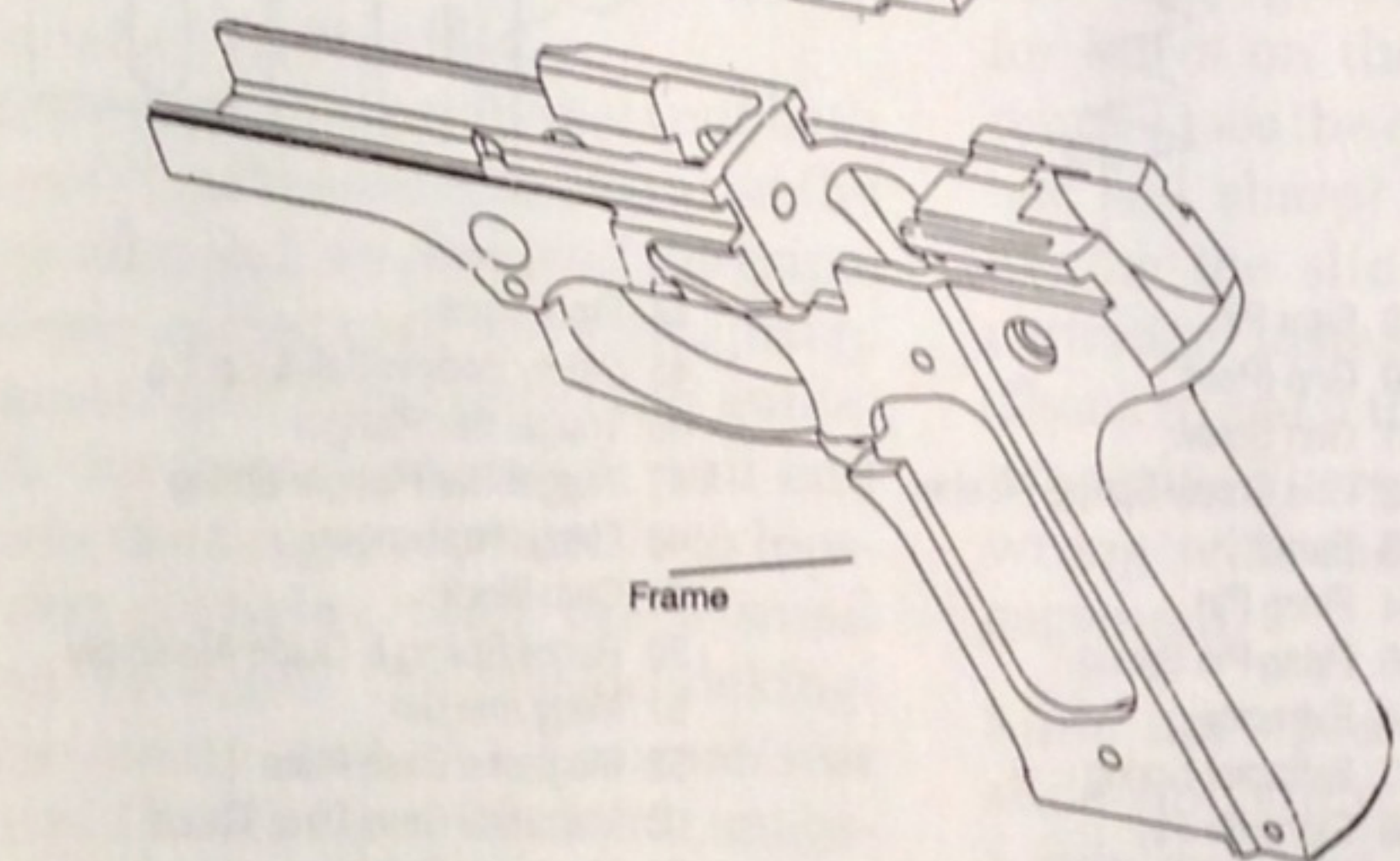
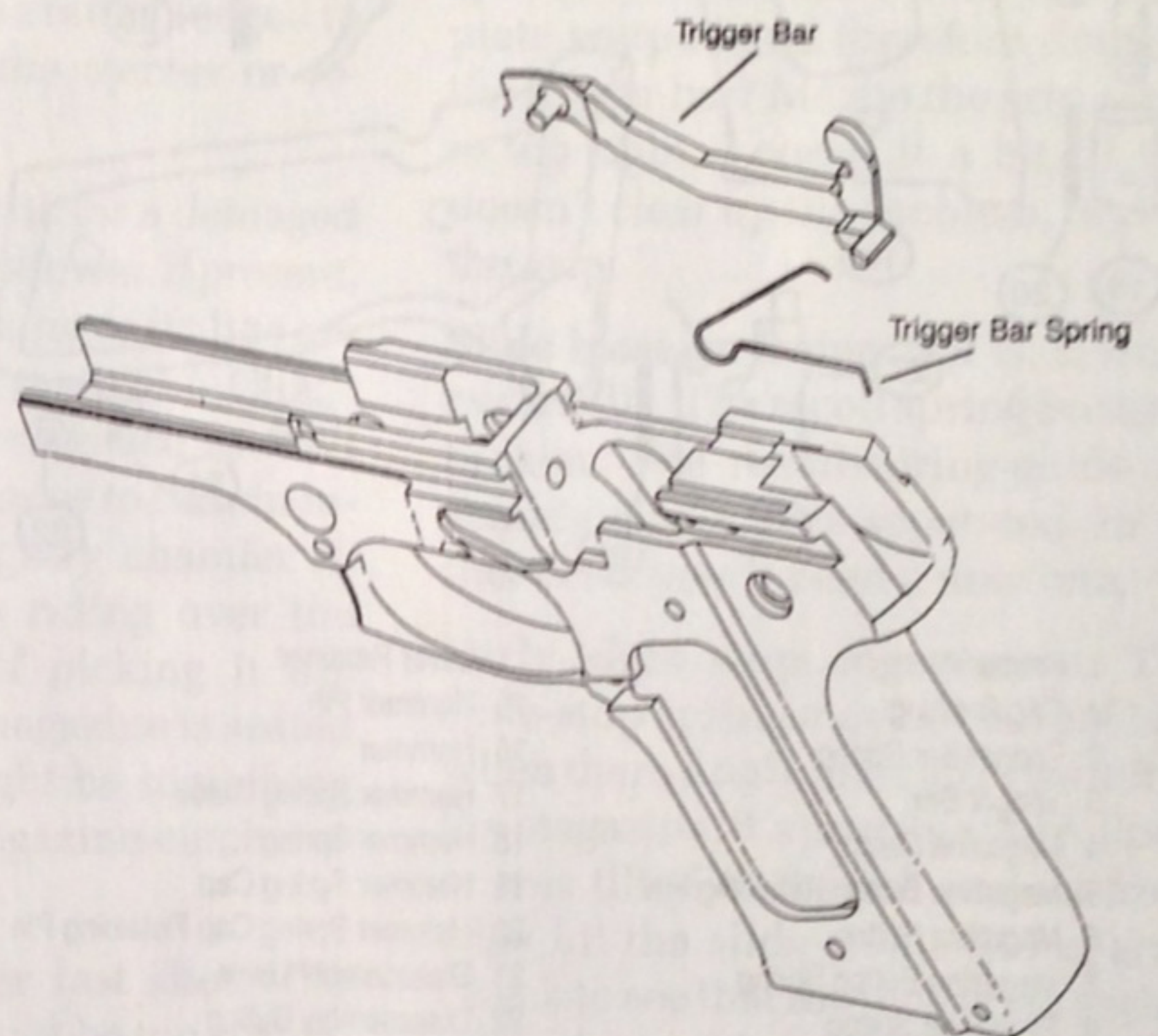
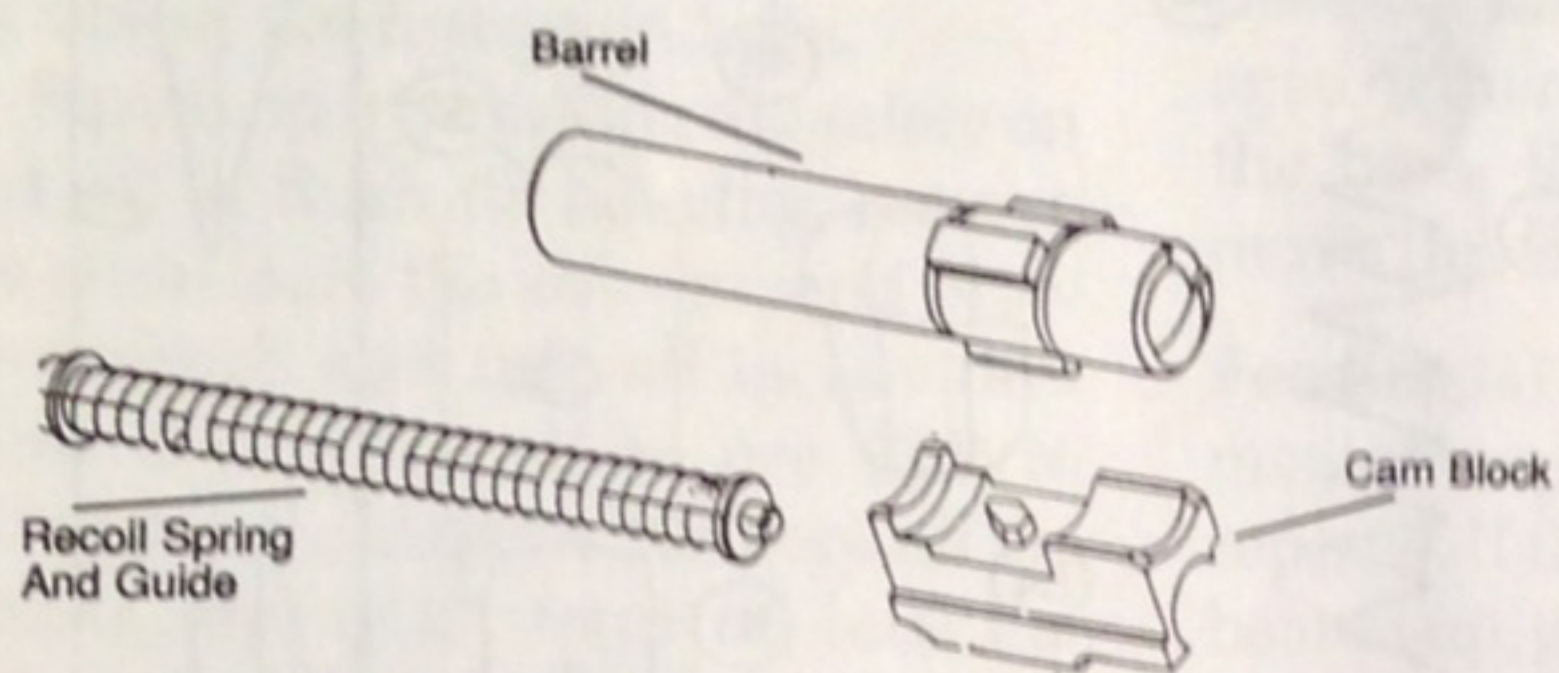
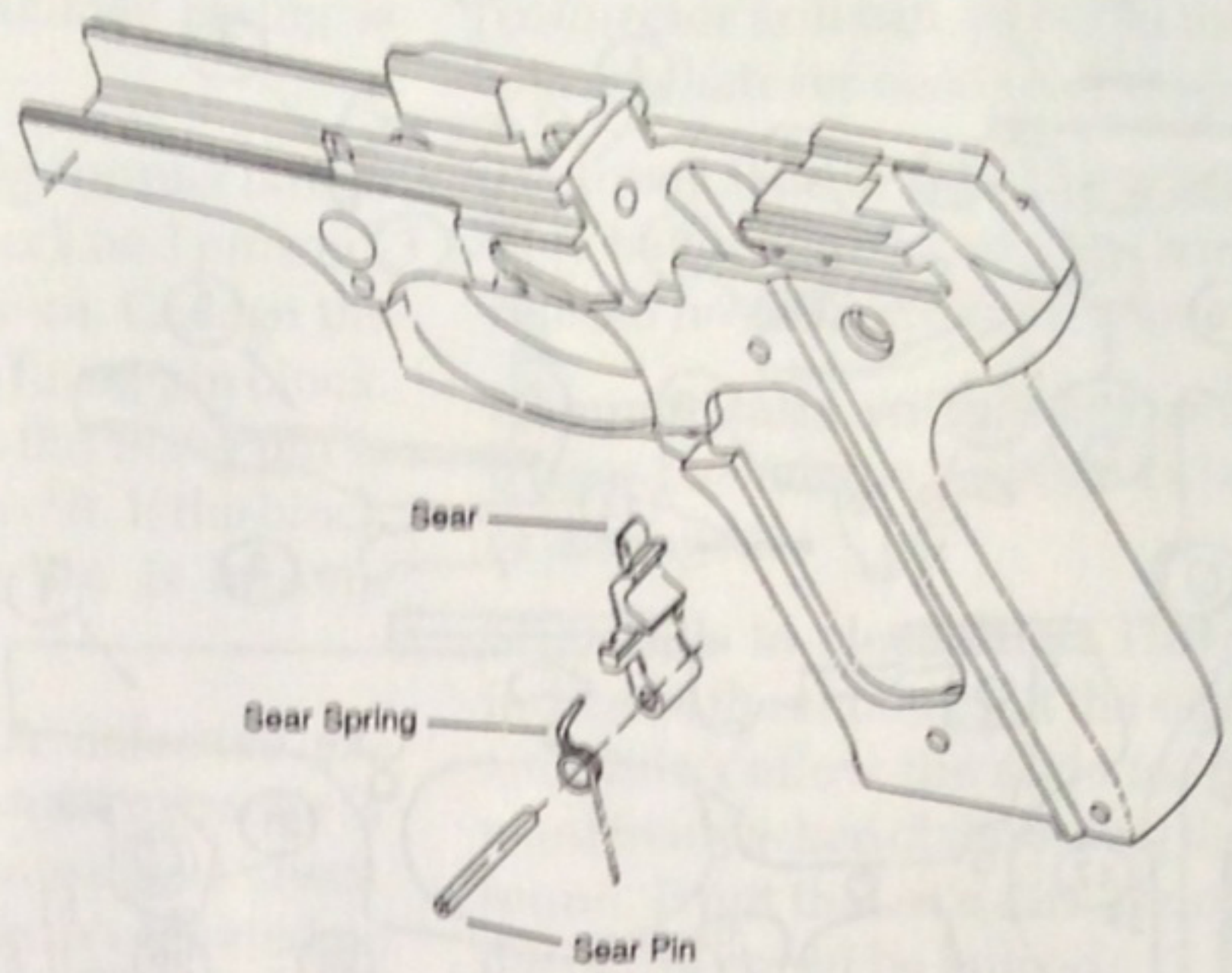
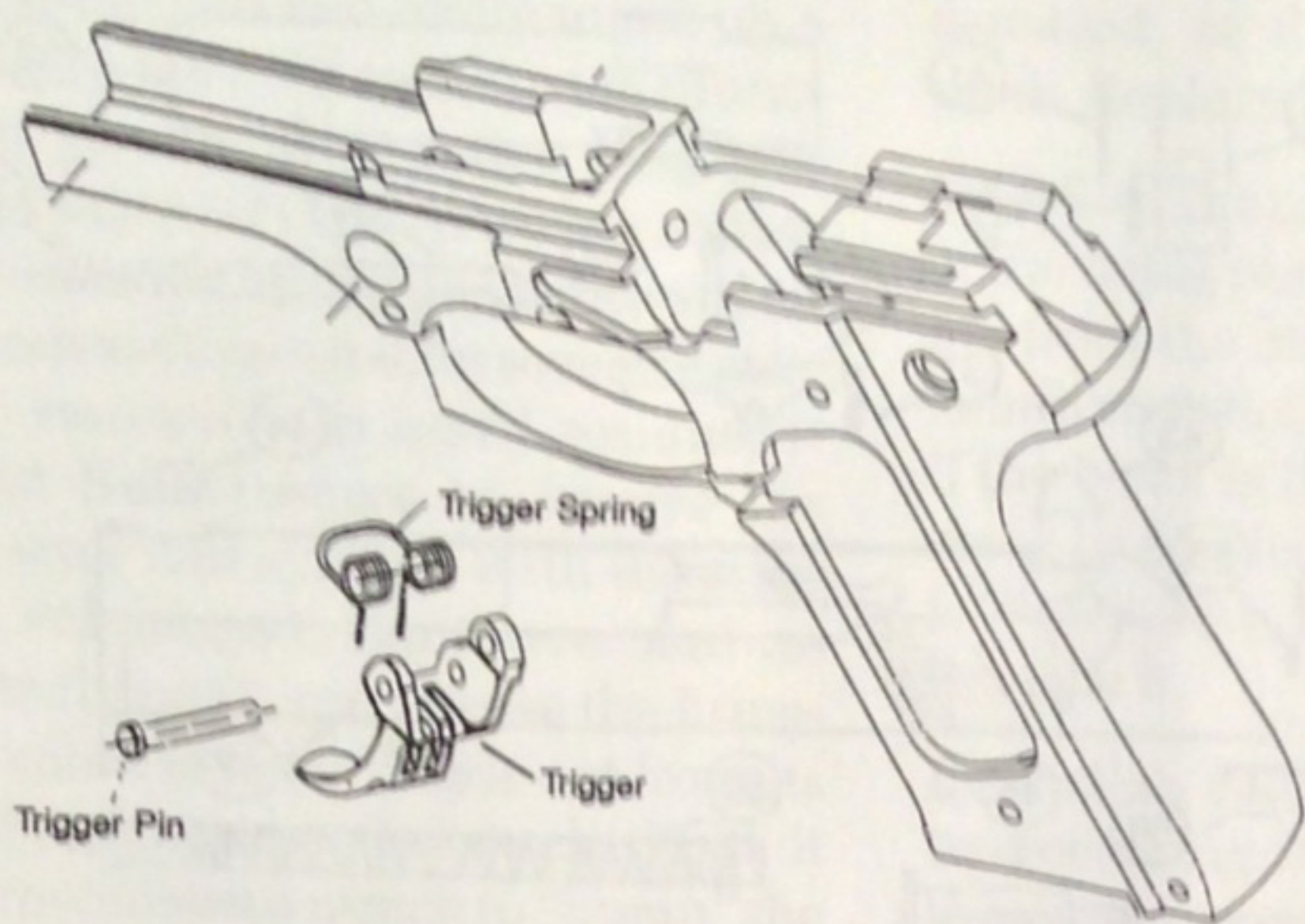
On the frame's right side is an arc-shaped cutout just above the trigger. Pull the trigger slightly, and put the front post of the trigger bar through the cutout and into the hole in the top of the trigger. Lay the back end of the trigger bar into its slot at the rear of the frame and press inward. The sharply bent leg of the trigger bar's spring is then inserted into its hole in the frame under the trigger bar. On the underside of the bar there's a groove. Press down on the free leg of the spring, and ride it into that groove. Lift the rounded portion of the spring up a bit, and clip it into its track cut in the frame. Between the hole in the frame, the groove and the cut in the frame, the spring should be completely captured.

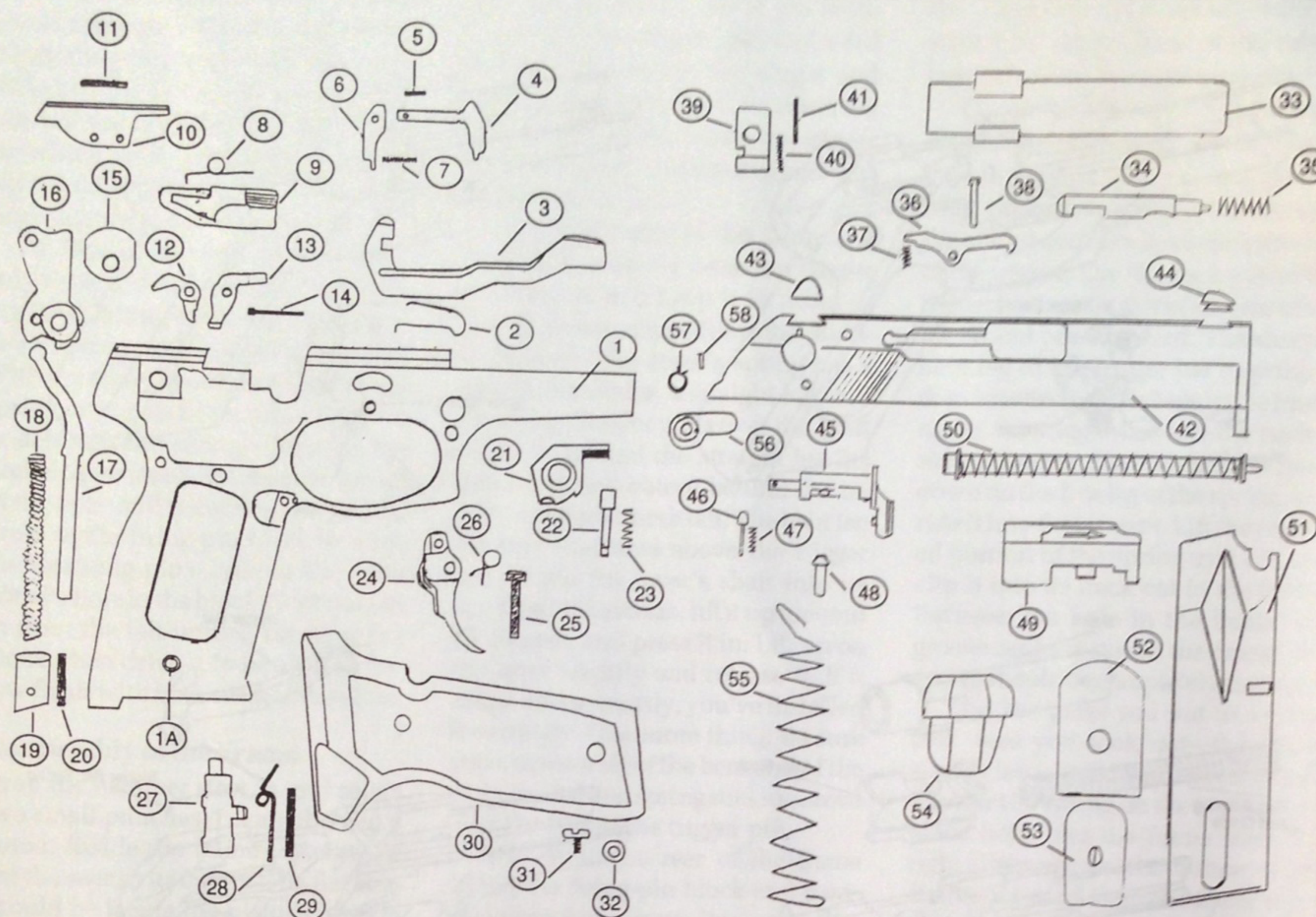
The last parts you put in are the first ones you took out—the disassembly latch, its button, and its spring. Skewer the spring on the button, and place both into the frame from the right. Press in on the button so its shaft sticks out from the frame's left side with the notch on the shaft facing upwards. Keeping pressure on the button, join it to the disassembly latch with the thumb piece of the latch at 90 degrees to the frame rails. Press in on the latch until it stops against the frame, and flip it downwards, being certain you guide it into the notch on the latch button.

Finally, marry your reassembled frame to the slide and check the pistol's functions with dummy rounds. If there are any glitches, you've gone wrong somewhere, and will have to backtrack until you discover what's causing the problem.

Speaking of Problems

The most common cause of problems with the Cougar are related to lack of cleaning, lack of proper lubrication, user error, and defective ammunition. A shooter with a limp wrist will generate malfunction after malfunction, but dirt creates the most trouble. Dirt can prevent the free movement of the firing pin or keep the hammer from falling. Result: misfire. It can





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|-------------------------------------|------------------------------------|-----------------------------------|------------------------------------|
| 1 Frame | Lever Retainer | 29 Sear Pin | 44 Front Sight |
| 1a Grip Bushing | 15 Hammer Pin | 30 Grip (Pair) | 45 Safety Body w/Ball & Spring |
| 2 Trigger Bar Spring | 16 Hammer | 31 Grip Screw | 46 Trigger Bar Plunger |
| 3 Trigger Bar | 17 Hammer Spring Guide | 32 Grip Screw Spring Washer | 47 Trigger Bar Plunger Spring |
| 4 Magazine Catch | 18 Hammer Spring | 33 Barrel | 48 Firing Pin Plunger |
| 5 Magazine Button Retaining Pin | 19 Hammer Spring Cap | 34 Firing Pin | 49 Cam Block |
| 6 Magazine Button | 20 Hammer Spring Cap Retaining Pin | 35 Firing Pin Spring | 50 Recoil Spring & Guide Assembly |
| 7 Magazine Button Spring | 21 Disassembly Lever | 36 Extractor | 51 Magazine Box |
| 8 Slide Stop Spring | 22 Disassembly Button | 37 Extractor Spring | 52 Magazine Base Plate |
| 9 Slide Stop | 23 Disassembly Button Spring | 38 Extractor Pin | 53 Magazine Base Plate Catch |
| 10 Ejector | 24 Trigger | 39 Firing Pin Block | 54 Magazine Follower |
| 11 Ejector Retaining Pin | 25 Trigger Pin | 40 Firing Pin Block Spring | 55 Magazine Spring |
| 12 Hammer Decock Lever | 26 Trigger Spring | 41 Firing Pin Block Retaining Pin | 56 Right Safety Wing |
| 13 Firing Pin Block Lever | 27 Sear | 42 Slide | 57 Right Safety Wing Spring |
| 14 Hammer Decock & Firing Pin Block | 28 Sear Spring | 43 Rear Sight | 58 Right Safety Wing Retaining Pin |

also cause the firing-pin block to get stuck. Result: slamfire. It can prevent the extractor hook from engaging the cartridge rim, render a magazine catch ineffective, interfere with or stop the sear from engaging the hammer notch, jam the hammer, sear, trigger bar and/or trigger in the frame, and keep the slide from fully closing. I could list several more things dirt can do to a Cougar, but at this point it would better serve your interests to know

what you can do about dirt.

When this pistol has been shot a lot, or exposed to mud, sand, and other bad stuff, it has to be thoroughly cleaned. Field stripping it and soaking it in kerosene—without the grips—loosens much of the gunk, which can then be blown out with an air hose.

One thing soaking and an air hose can't solve is an accumulation of metal in the barrel. To clear that up, wrap the end of a cleaning rod with medi-

um steel wool, dip it in kerosene or CLP, insert the rod from the chamber end, and scour the bore without pushing the rod beyond the muzzle. You heard right. I said steel wool. The bore and chamber of a Cougar are chrome lined and won't be damaged.

Another kind of metal fouling occurs when bits of oversize or out-of-round bullets build up and are compressed into the chamber shoulder. Pick the shoulder clean with a long

needle or dental tool. Still on ammo: Some of it leaves a generous deposit of residue that can really muck up a slide. To cure the resulting malfunctions, give the slide a nice, long bath in powder solvent. Wearing rubber gloves, reach in and push outward on and release the extractor several times. (For seriously impacted residue, it might be necessary to remove the extractor and spring.) With the slide still submerged, flip it over and repeatedly push and release the firing-pin catch to flush debris out from its pocket. Depress the catch, hold it down and use a punch to "pump" the firing pin quickly in and out. In a dirty gun, you'll see a stream of black liquid that used to be powder residue spurt- ing out of the firing-pin hole.

Finish up by working the safety on and off to flush its housing, remove the slide from the solvent, and blow air through and into all its cavities. After drying the slide, use CLP to lubricate all components, wipe off the excess, and don't forget to lube the rails before reassembly.

Don't put a lid on the solvent bath just yet. You'll need it to clean out the frame after you've removed the grips, hammer-spring cap, hammer spring, hammer, and hammer-spring guide. With the frame immersed, pull and release the trigger repeatedly to loosen dirt particles, then use a small brush to scrub the trigger/locking-block cavity and the hammer/sear cavity. The disassembly latch, magazine-release button, and hammer-release lever should be cycled a number of times before the frame is blown free of solvent and dried. Before you put the grips back on, lubricate the barrel, the rails, and the hinge areas of all moving parts.

Troubleshooting

As I mentioned, for the most part, malfunctions in the Cougar are caused by dirt and such things as the failure of a shooter to turn the safety to its full off position. Other problems are rare. Nevertheless, the following is a quick reference list of mechanical failures, their causes, and what you can do to correct them.

Misfires. The firing pin and/or striker or the firing-pin-block lever may be damaged, or the hammer spring is weak. Replace.

Slamfire. The cartridge primer is high or the firing pin is stuck and protruding from the breechface. Change the ammo and check the firing-pin block. If the block is lifted, the firing pin is stuck by residue. Clear it. If the block is down, the firing pin is broken. Replace it.

Extraction failure. A defective extractor spring or damaged extractor is the most common cause, but check the chamber to see if it's corroded or bulged. If it is, replace the barrel.

Ejection failure. The ejector is damaged or there may be a bullet lodged in the bore. Replace the ejector or remove the slug.

Feeding failures. Look for a damaged magazine spring or follower. If present, replace. If the magazine or its lips are beaten up, get a new magazine. Check for burrs on the breechface or feed ramp. Does the entrance to the chamber feel sharp? Slightly chamfer it. Maybe the slide is riding over the cartridge instead of picking it up. Check to see if the magazine is seated properly. There might be something wrong with the magazine-catch engagement.

Slide not open after last shot. The slide-stop spring could be too strong, a grip may be warped, or the mag spring weak. Replace. Check for any burrs on the follower and smooth them up if possible. If not possible, replace. Examine the slide-stop hook and slide stop for wear. Sometimes, they can be salvaged with stoning.

Magazine falls out. See if there's a cutout in the magazine for the mag-catch hook. If not, the mag is an old design and should be replaced. If there is a cutout and it's burred, deburr.

Hammer won't cock. Look for a broken sear spring, a damaged sear, sear pin, or hammer notch. If so, replace.

Hammer follows slide. A defective sear spring, a broken sear pin, a worn

sear nose, a worn hammer notch, and a worn or broken-off trigger-bar-disconnector arm can all cause this. Replace whatever needs to be replaced.

Hammer fails to fall. The trigger bar may be broken. So may the hammer-release lever. You know what to do.

Hammer falls with safety on. The trigger-bar-release plunger is broken or damaged.

Slide fails to close fully. This often indicates the shooter left the safety on and didn't allow the slide to fly forward freely when chambering the first round. If not that, it's dirt. If not dirt, the barrel could be bulged.

Trigger fails to return. Is the trigger spring broken? If not, is the right grip plate warped and therefore dragging the trigger bar? Maybe the grip screw is too tight. Loosen it a bit. If that doesn't clear up the problem, replace the grip.

Slide loose on frame. If it is, it won't cycle fully. The recoil spring could be broken. The recoil-spring-guide assembly could have separated. In either case, you'll need a new one.

Early slide stop engagement. The slide-stop spring may be broken, but, when there's only one cartridge left in the magazine, it's possible the follower was tilted to the left and its front edge hit the slide stop's lifting arm. Check to see that the magazine spring is fitted properly to the follower. If the malfunction persists, either replace the follower or carefully round the corner edge of its feed cam where it's striking the slide stop.

Stovepipes. More often than not, this is due to defective ammo or a shooter not holding the pistol firmly when firing it. When neither of those, it indicates the recoil spring is weak and due for replacement.

Slide jams back. Use no force. Various internal parts could be broken. Total disassembly is required to ferret out the problem. If this is not possible, return the pistol to the factory.

Slide jams forward. See previous paragraph and act accordingly. ■